

- 1855—*Mylocheilus lateralis*, AGASSIZ, Am. Journ. Sci. and Arts, p. 231.
Mylocheilus lateralis GIRARD, Proc. Acad. Nat. Sci. Phila. p. 169, 1856.
Mylocheilus lateralis GIRARD, Pac. R. R. Expl. p. 213, pl. 48, f. 5-8, 1858.
Mylocheilus lateralis JORDAN & COPELAND, Bull. Buffalo Soc. Nat. Hist. p. 155, 1876.
- 1856—*Mylocheilus fraterculus* GIRARD, Proc. Acad. Nat. Sci. Phila. p. 169.
Mylocheilus fraterculus GIRARD, Pac. R. R. Expl. x, p. 215, pl. 45, f. 1-4, 1858.
Mylocheilus fraterculus COOPER, Nat. Wealth Cal. by Cronise, p. 496, 1868.
Mylochilus fraterculus JORDAN & COPELAND, Bull. Buffalo Soc. Nat. Hist. p. 155, 1876, (name only).

Habitat.—Northern California to British Columbia.

My specimens agree perfectly with Dr. Günther's description of his *Leucosomus caurinus*, which was taken in part from Richardson's original types, except that the size of the eye in my fishes is proportionally larger. Agassiz's account of *Mylocheilus lateralis* answers in a general way, except that I find no trace of anything which can be called a horny sheath on the jaws. There is nothing in Girard's trivial description of *Mylochilus fraterculus* to indicate distinction. I therefore follow Dr. Günther in considering *M. lateralis* and *M. fraterculus* as mere synonyms of *M. caurinus*. The genus *Mylochilus* resembles in form, squamation, etc., the genus *Gila*. It has, however, a much smaller mouth than most of the species of that genus. Its relations are rather with *Pogonichthys* and *Platygobio*, from both of which it differs in the peculiar form of its teeth as well as in the number of teeth. I find in the specimen before me the teeth 2, 5-5, 2, the teeth of the smaller row quite small and close together, and the innermost of the larger row much enlarged and truncate, gradually diminishing in size to the uppermost, which is slender, compressed, and hooked. I find no trace of a third row in my specimens.

The genus *Mylopharodon* Ayres is perfectly distinct from *Mylochilus*, the upper jaw being non-protractile, the dorsal behind the ventrals, and no barbel at the angle of the maxillary. *Mylopharodon* thus far apparently contains but a single species, the types of *Gila conocephala* B. & G. and *Mylopharodon robustus* Ayres being, so far as I can see, conspecific.

**A REVIEW OF THE AMERICAN SPECIES OF THE GENUS SCOPS,
SAVIGNY.**

By ROBERT RIDGWAY.

Previous to the publication, some two years since, of Mr. R. B. Sharpe's admirable work on the *Strigidae*,* I had paid considerable attention to the study of the American Scops-owls, but the lack of sufficient material prevented my reaching any very positive conclusion as to several forms of questioned validity. More recently, however, through the assistance of several friends, among whom I may name in particular Mr. Osbert

* Catalogue of the Striges, or Nocturnal Birds of Prey, in the Collection of the British Museum. By R. Bowdler Sharpe. London: Printed by order of the Trustees. 1875.

Salvin, of England, and Mr. George N. Lawrence, of New York City (both of whom have kindly loaned me their entire series), I have been enabled to bring together a collection amply sufficient to settle former doubts.

The inference derived from a careful study of the material first in hand was, that a greater number of species existed than were usually recognized as valid; certain forms allied to *S. brasiliannus* (Gmel.), named, but generally considered synonymous with some other species, being represented by typical specimens, while there were no examples of intermediate character, the differences between these several styles being moreover so obvious that it seemed scarcely possible they could intergrade. I was therefore quite convinced that additional material would confirm the view of their distinctness. Being thus prejudiced, as it were, in my views of the relationship of the several forms alluded to, I at first attempted to divide the new series accordingly. Determined and repeated efforts failed, however, until I fully realized the utter hopelessness of the attempt. Thus I was irresistibly, though quite against my previous convictions, led to the same conclusion as that reached by Messrs. Selater and Salvin, and subsequently adopted by Mr. Sharpe, that the several supposed species allied to *S. brasiliannus* are merely geographical, local, and individual variations of the same species. No other view seems justifiable, in view of the complete and unquestionable intergradation between the most extreme variations. The only alternative is to allow a very much greater number of forms even than have been named, admitting at the same time the intergradation of each with the other.

It has been remarked by an eminent author* that few, if any, birds vary more in their feral state, both individually and otherwise, than the owls, and that of all the genera of this family the present one is the most variable. In this opinion I fully agree, for I have rarely had a more difficult and, I may say, more unsuccessful task than my attempt to elucidate the several species and "races" treated in the present memoir.

In the first place, the plumage is characterized by confused markings in the form of zigzags, "herring-bone" picture, and minute vermiculations, having much the same general character in all, the difference between the several species in the pattern of coloration being exceedingly difficult of description. Next, there is the perplexing condition of "dichromatism", the same species having two very distinct phases of plumage—a gray phase, which may be considered the normal dress, and a rufous phase, which is an extreme development of the variation called "erythrism". These two extreme phases, which it is to be remembered do not depend at all upon age, sex, or season, being purely an individual peculiarity, are in each species so very unlike that corresponding phases of the several really distinct species resemble one

* Sharpe, *t. c.*, p. 44.

between the species of each group, which is a much more difficult matter. Passing by group A., which contains only *S. nudipes*, the three species belonging to group B. may be distinguished as follows:—

a.—Toes stout, with strong claws. Wing exceeding 5.75 inches (rarely less than 6.00, and ranging to nearly 8.00 inches); tail more than 3.15 2. *S. brasilianus*.

b.—Toes weak and slender, with weak claws. Wing less than 5.75 inches (ranging in length from 5.10 to 5.60); tail less than 3.15 (2.60–3.10).

Feathers of the outer margin of the face with their shafts produced into slender, soft, hair-like, curved bristles, forming a conspicuous ruff, the anterior side concave. Plumage coarsely spotted, above and below 3. *S. barbarus*.

Feathers of the outer margin of the face with their shafts not conspicuously developed. Plumage finely vermiculated, above and below, the outer scapulars having orange-buff spots on the outer webs..... 4. *S. flammeolus*.

The above brief diagnoses are probably sufficient to distinguish these three very distinct species in all their numerous variations. The differences are very much more easily perceived than defined, the birds having an entirely different aspect when compared with one another. Of the three, *S. brasilianus* varies almost indefinitely, but may always be known by its much stouter toes and stronger claws, as well as by its larger size, even in the smallest race (*S. cassini*), although the difference in dimensions is sometimes so slight as to be perceptible only by actual measurement. *S. barbarus* is distinguished by the coarseness of its markings, which partake of the character of roundish or transversely-oblong spots, rather than fine vermiculations, and by the peculiar development of the shafts of the facial feathers. *S. flammeolus* is slightly smaller than *S. barbarus*, and of quite different build, having an extremely light and slender body, with small head, the wings thus seeming very long in proportion. As to colors, it may ordinarily be distinguished from all the other species by the pronounced orange-buff tint of the outer webs of the outer row of scapulars, these being in most others white, or, if not white, of a more sombre shade of buff and fulvous, the plumage being otherwise quite different. According to Mrs. M. A. Maxwell, who has in her finely-mounted collection of Colorado birds a very beautiful specimen, the iris of this species is of a deep hazel, or umber-brown; should this prove constant, it will afford an excellent character, since the iris in nearly if not all the other species is known to be a bright lemon-, or gamboge-, yellow.

A.—Lower half or more of the tarsus completely naked, like the toes.

1. SCOPS NUDIPIES.

Bubo nudipes, VIEILL., Ois. Am. Sept. 1807, pl. 22.

Scops nudipes, CUV., Règ. Anim. 1829, 347.—STRICKL., Orn. Syn. I, 1855, 203.—LAWR., Ann. Lyc. N. Y. IX, 1868, 132 (*Costa Rica*).—SALVIN, P. Z. S. 1870, 216 (*Veragua*).—SCL. & SALV., Nom. Neotr. 1873, 117 (*Costa Rica to Columbia*).—SHARPE, Cat. Strig. Brit. Mus. 1875, 121 (*Veragua; Costa Rica*).—BOUC., Cat. Av. 1876, 91 (*Veragua*).

Ephialites nudipes, GRAY, Genera B. I, 1844, 38.

Acenemis nudipes, BONAP., Rev. et Mag. de Zool. 1854, 542.

Strix psilopoda, VIEILL., Nouv. Dict. XVI, 1817, 46.

Hab.—Costa Rica and Veragua.

DIAGNOSIS.—“*Adult.* Above sandy rufous, vermiculated with black, much darker on the back than on the head, the dorsal feathers black in the centre, barred and spotted with sandy rufous, these bars more distinct on the scapulars, the outermost of which are silvery white, externally tipped with black; wing-coverts decidedly darker than the back, the innermost of the least series uniform blackish brown, the rest spotted and barred with sandy rufous, the bars especially broad on the greater series, some of which have a tolerably large buffy white spot near the tip of the outer web; spurious quills externally notched with sandy rufous, inclining here and there to whitish; primary coverts nearly uniform blackish brown, with a few bars of sandy rufous near the tips of the outer webs; quills blackish brown, the inner webs of the primaries quite uniform, excepting for a few yellowish bars near the bases of the interior feathers, the secondaries indistinctly barred with ashy brown on the inner webs, all the quills externally barred with sandy rufous, paler and more fulvous on the outer web of the primaries, the innermost secondaries mottled and barred with sandy rufous, and resembling the scapulars; tail blackish brown, with seven feebly indicated narrow bars of sandy rufous; head and neck decidedly clearer than the back, and somewhat inclining to chestnut, the feathers black in the centre, and laterally barred with the same, giving a generally barred appearance to these parts; lores and sides of face bright bay, the loreal plumes blackish at tip, and the ear-coverts with a few indistinct cross bars of black; over the eye a few white-barred feathers, forming a faint eyebrow; ear-tufts lighter than the crown, orange rufous, broadly barred with black at the tips; under surface of body sandy rufous, many of the feathers coarsely vermiculated with black, the breast-feathers streaked and laterally barred with black, these black markings less distinct on the flanks and abdomen, on which parts are tolerably distinct bars of white; leg-feathers bright orange-rufous, with a few narrow brown bars on the tibia; under tail-coverts white, barred across with sandy rufous; under wing-coverts fulvous, thickly mottled with brown near the outer edge of the wing, which is white, the lower series dark brown, like the inner lining of the quills; bill yellowish;

feet yellowish, claws horn-colour. Total length 10 inches, wing 6·8, tail 4·1, tarsus 1·55, bare part of latter 0·85. (*Mus.* Salvin and Godman.)

“*Obs.* My description is taken from a specimen obtained at Calobre, in Veragua, by Arcé, and kindly lent to me by Mr. Salvin. He has at the same time lent me another specimen, obtained by the same collector in Costa Rica. This latter bird differs in several points from the one described, having more of the general aspect of *Scops pennatus* of the Himalayas; it is clear sandy in colour, the black forming regular bars across the plumage, the subterminal one very broad, and giving the appearance of large black spots to the upper surface; feathers of the crown centred with black, the sandy-colored interspaces forming very distinct spots, the ear-tufts being still lighter, and barred across with whitish; the white spots on the scapulars, wing-coverts, and outer webs of primaries very distinct, as are also the white bars on the lower surface, many of them being apparent also on the chest-feathers; the quills barred with ashy brown on their inner webs, inclining to sandy buff on the secondaries. Total length 9·5 inches, wing 6·8, tail 4, tarsus 1·45, bare part of the latter 0·65.”

The only specimens of this species which I have seen are several borrowed from Mr. Salvin, and returned to him without descriptions having been taken from them. I therefore quote Mr. Sharpe's account of the species (*l. c.*).

B.—*Toes only, or with, at most, the extreme lower portion of the tarsus, completely naked.*

2. SCOPS BRASILIANUS.

a. brasilianus.

Strix brasiliana, GMEL., S. N. I, i, 1788, 289 (ex Briss., I, 499).

Strix choliba, VIEILL., Nouv. Dict. xiv, 1817, 39 (ex Azara, Apunt. II, 218).

Strix decussata, LICHT., Verz. Doubl. 1823, 59.

Strix crucigera, SPIX, Av. Bras. I, 1825, 22, pl. 9.

Strix undulata, SPIX, *l. c.* pl. 10.

? *Scops lophotes*, LESS., Traité, I, 1831, 107.

Ephialites argentina, LICHT., Nomencl. 1854, 7.

β. atricapillus.

Strix atricapilla, “NATT.,” TEMM., Pl. Col. II, 1838, pl. 145.

Ephialites watsoni, CASSIN, Pr. Phila. Acad. IV, 1849, 123.

γ. ustus.

Scops usta, SCL., P. Z. S. March 9, 1858, 132.

δ. guatemalæ.

Scops brasilianus, subsp. *β. Scops guatemalæ*, SHARPE, Cat. Striges Brit. Mus. 1875, 112, pl. ix.

ε. cassini.

Scops brasilianus, *ε. cassini*, RIDGW., MS.

The above synonymy will serve to show what names I would bring together under the specific head of *Scops brasilianus* (Gmel.) on account

of the complete intergradation of the forms which they designate; it will also indicate the number and names of the more pronounced races I have been able to make out, arranged in chronological sequence, the full synonymy of each being given separately further on.

There are now before me 44 specimens of Scops-owls from Tropical America, different specifically from *S. barbarus*, *S. flammeolus*, and *S. nudipes*, and also very distinct from the hairy-toed members of the genus. This series appears, at first sight, to be made up of several distinct species, there being no less than six very pronounced types of coloration represented; these different styles being so exceedingly different in appearance that in the absence of intermediate specimens no one would hesitate to recognize their specific distinctness.

These different styles are more or less characteristic of separate geographical areas; thus, the "*brasilianus*" type prevails over Eastern South America, "*ustus*" in Upper Amazonia and in Columbia, "*guatemalæ*" in Central America, and "*cassini*" in Eastern Mexico. They thus partake somewhat of the nature of geographical races; were they strictly such, the case would be very much simplified; but such, unfortunately, is not the case, since it frequently occurs that extreme specimens of one form may be found in a region of which it is not typical, while several, if not all, of them may be represented in a sufficiently extensive series from a single district! Thus, we have true "*guatemalæ*" from Bahia, Brazil; pure *brasilianus* from Costa Rica and Guatemala; and a specimen apparently very much like "*ustus*" from Sta. Catarina, S. E. Brazil.

In the absence of specimens of neutral or intermediate character, these facts would not be antagonistic to the theory of specific distinctness of the forms named above, but, on the contrary, would be decidedly confirmative, since they would do away with the probability that the variations are purely the result of geographical impress. Generalized specimens, however, or those which are not typical of either one or the other of the several races, constitute a very large proportion of the whole.*

It is in consideration of all these facts that we are led to conclude that the several particular forms we have named above, however distinct they may appear when the most specialized examples are compared, are but "strains" of a single species, tending toward the establishment of permanent geographical races (and in the course of time distinct species), but which, in consequence of the non-extinction of specimens of a generalized nature, have not yet passed the incipient stage.

The variations in this species involve not only differences in the colors themselves, but in the character and distribution of the markings, scarcely two examples being exactly alike. Variations of a purely

*A specimen from Mazatlan, Western Mexico, in the gray phase, is so exactly intermediate between *guatemalæ* and *brasilianus* that it cannot be referred more properly to one than to the other.

individual nature, however, are best treated under the head of each particular race.

a. brasilianus.

- Le Hibou de Brésil*, BRISS., Orn. I, 1760, 499 (*Brazil*; = rufous phase, with feathers of lower surface distinctly rufous below the surface, and sharply barred).
- Strix brasiliaua*, GMEL., S. N. I, i, 1788, 289 (ex Briss., l. c.).
- Scops brasiliauus*, GRAY, Hand-l. I, 1869, 47 (part).—SCL. & SALV., P. Z. S. 1868, 629 (*Venezuela*); 1870, 782 (*Merida, Venezuela*); 1873, 304 (*E. Peru*); Nom. Neotr. 1873, 117 (part).—SHARPE, Cat. Strig. Brit. Mus. 1875, 108 (*Bahia*; *Para*; *Island of Mexiaua*; *Upper Amazons*; *Cayenne*; *Trinidad*; *Caraccas*; *Antioquia*; *Columbia*).—FINSCH, P. Z. S. 1870, 557 (*Trinidad**).—BOUC., Cat. Av. 1876, 91.
- Ephialites brasiliensis*, GRAY, Genera B. I, 1844, 35.
- Otus brasiliensis*, TEMM. & SCHLEG., Fauna Jap. 1845, 25.
- Scops brasiliensis*, BONAP., Consp. I, 1850, 46.—KAUF, Contr. Orn. 1852, 112.—SCHLEG., Mus. P.-B. Oti, 1862, 21; Rev. Acc. 1873, 11.
- Megascops brasiliensis*, KAUF, t. c. 228.
- Asio brasiliensis*, BONAP., Rev. et Mag. de Zool. 1854, 543.
- Choliba*, AZARA, Apunt. II, 1802-05, 218.
- Strix choliba*, VIEILL., Nouv. Dict. XVI, 1817, 39 (ex Azara, l. c.), (= "*brasilianus*" style, with feathers of lower parts distinctly orange-rufous below surface, etc.).
- Ephialites choliba*, GRAY, Genera B. I, 1844, 38.—PELZ., Orn. Bras. 1870, 9.
- Scops choliba*, D'ORB., Voy. Ois. 1835-'44, 132.—TSCUDI, Fauna Per. 1844, 118.—STRICKL., Orn. Syd. I, 1855, 204.—LAWR., Ann. Lyc. N. Y. VII, 1862, 462 (*New Granada*).—SCL. & SALV., P. Z. S. 1866, 198.
- Strix decussata*, LICHT., Verz. Doubl. 1823, 59.
- Scops decussata*, BURM., Th. Bras. II, 1856, 126 (*grayish phase*).
- Strix crucigera*, SPIX, Av. Bras. I, 1824, 22, pl. 9.
- Strix undulata*, SPIX, t. c. pl. 10.
- Ephialites argentina*, LICHT., Nom. 1854, 7.—SCHLEG., Mus. P.-B. Oti, 1862, 21.
- Scops argentina*, GRAY, Handl. I, 1869, 47.
- ? *Scops lophotes*, LESS., Traité, I, 1831, 107.†—PUCHERAN, Rev. et Mag. de Zool. 1849, 22

* "One specimen, agreeing with Brazilian specimens."

† "Tout le dessus du corps brun foncé, ponctué de roux, mais par points très-ténus, très-rapprochés et très-nombreux. Les dessous du corps roux, flammé de noir, formant une masse brune sur la poitrine; les huppées élargies à la base. Patrie inconnue.

"*Observ.* On doit ajouter à ce sous-genre le HIBOU CHAPERONNÉ, *Strix atricapilla*, Temm., pl. 145, du Brésil, et le HIBOU NOCTULE, *Strix noctula*, Reinw., Temm., pl. 99, de Java et de Sumatra, qui est peut-être l'espèce 25, décrite sous le nom de *Scops de Java*." [Lesson, l. c.]

From the description alone, as quoted above, it is absolutely impossible to decide to which of the races of *S. brasilianus* this reference belongs. It is quite as likely to be a synonym of the form we distinguish as *atricapillus*, Temm. (see p. 95). Sclater and Salvin (Ex. Orn VII, 1868, p. 102), who have seen Lesson's type, say that it is "probably only a paler form" of *S. brasilianus*. Another name, usually referred to *S. brasilianus*, but which we are in doubt about, is *Scops portoricensis*, Less. (Traité, I, 1831, 107.—"Scops de Porto Rico"). We have never seen a specimen of this genus from any of the West India islands, but think it quite likely that peculiar races exist there. Of this bird also, Messrs. Sclater and Salvin "have seen the type-specimens, . . . in the Paris Museum, and have been unable to distinguish it from *S. brasilianus*." We quote below Lesson's description in full:—

"D'un gris-roux glacé, strié en long de flammèches roux-brun, plus finement strié en travers; deux huppées élargies et triangulaires sur les côtés de la tête; taille un peu plus forte, et teinte beaucoup plus blonde que l'espèce d'Europe. Habite l'île de Porto-Rico. (Mus. de Paris, Mangé.)"

(critical).—BONAP., Consp. I, 1850, 46.—STRICKL., Orn. Syn. I, 1855, 204.—SCL. & SALV., Ex. Orn. 1868, 102 (in text).—GRAY, Hand-l. I, 1869, 47.

Asio lophotes, BONAP., Rev. et Mag. de Zool. 1854, 543.

? *Scops portoricensis*, LESS., Traité, I, 1831, 107.—Pucheran, Rev. et Mag. Zool. 1849, 26 (critical).

"*Ephialites portoricensis*", LÉOT., Ois. Trinidad, 1866, 57.

REMARKS.—This style, which prevails over Eastern South America (Brazil, Paraguay, and Buenos Ayres), is characterized mainly by the very sharp definition of the cross-bars on the lower parts, these being usually nearly pure black upon an almost pure white ground, and by the very distinctly orange-rufous bases of the feathers, this color showing conspicuously on the lower surface wherever the plumage is disarranged.

Thirty specimens are before me, the localities represented being the following:—Brazil (13), Paraguay (1), Buenos Ayres (1), Ecuador (Napo 1), Columbia (Antioquia 2, Bogota 2), Costa Rica (9), and Guatemala (1.) Six specimens from Costa Rica, collected by Mr. J. C. Zeledon, are almost undistinguishable from one another; the uniformity of their characters being indeed remarkable for this species. Two others which greatly resemble each other are one from Bogota, in Salvin and Godman's collection, and one in my own collection (No. 2270) from Guatemala. These are almost exactly alike; they have the upper parts of a dark grayish-brown color, very minutely and densely vermiculated with blackish, further relieved by occasional, inconspicuous lighter frecklings, and rather indistinct blackish mesial streaks, most obvious on the pileum; the feathers of the lower surface are distinctly bright buff below the surface, while the blackish markings—both the transverse and the longitudinal ones—are sharply defined and very distinct. In their general aspect, these specimens agree very nearly with typical examples of the "*brasilianus*" style, but are darker in their general coloring above, where the mottlings are finer and denser.

A typical specimen of the style is No. 16431 (Nat. Mus.), from Paraguay. This has the lower plumage exactly like the two specimens described above, but the upper parts are lighter and more grayish, with the blackish mesial streaks in stronger relief. The Costa Rica specimens alluded to above greatly resemble this one, but are rather paler and more grayish. An extreme example is No. 12400 (Nat. Mus.), from Buenos Ayres. This has the lower parts as described above, except that the orange-buff of the basal portion of the feathers is brighter, and the black mesial streaks broader. The upper parts are light tawny, or sandy clay-color (not rufous), with very minute and inconspicuous transverse vermiculations, the black mesial streaks broad and conspicuous, especially on the pileum, where they form continuous stripes, while on the dorsal region they each have one or two expansions, so as to form a bead-like series. Quite similar to this, but darker above and with narrower streaks beneath, is a male in Salvin and Godman's collection from Antioquia, Columbia.

The most aberrant of the South American specimens before me is an example from Sta. Catarina, S. E. Brazil (Mus. Salvin and Godman). This has the upper plumage much as in the specimen last described, but the outer webs of the scapulars are bright buff, instead of white, and the pileum is suffused with blackish, the streaks of this color being thus rendered less distinct. It is the lower parts, however, which differ most: there is an entire absence of the usual sharply-defined, transverse, blackish markings, but in their stead exceedingly irregular and ragged markings of rusty rufous, into which the very obvious but ill-defined broad mesial streaks gradually blend; the whole pectoral region, the throat, and the face have a uniform rusty-buff ground-color, relieved by few markings. This individual apparently approaches the form named by Selater *S. ustus*.

Besides the above variations, there is another, involving the intensity of the buff on the basal portion of the feathers of the lower parts; in many, this is so bright as to show conspicuously wherever the feathers are the least bit disarranged, while in others only the merest trace of it can be discovered by careful search. Between all these variations, however, there is every possible intermediate condition in different individuals.

Mr. Sharpe (*l. c.*) remarks that this race does not assume the bright rufous phase so common in the form named *guatemalæ*. I have seen, however, a specimen from Bahia, an adult female, which is as brightly rufous as any specimen of *guatemalæ*, or, for that matter, even *S. asio*. The upper parts are deep brick-rufous, all the feathers with blackish shaft-streaks, these broadest on the pileum and back; the upper tail-coverts and the sides of the neck only are without these streaks. The outer webs of the exterior row of scapulars are pure white; the feathers of the dorsal region show fulvous transverse spots on the basal portion, mostly concealed, except where the feathers are disturbed, and larger across the nape than elsewhere. Each feather of the sides, flanks, and abdomen has a mesial streak of blackish-brown (with here and there a slight external suffusion of paler and more rusty-brown), which color expands into two rather wide, transverse, externally pointed spots on the basal half of the feather,—the terminal half having two or three narrow, finely zigzag, transverse lines of dark brown, here and there mixed with rufous,—making an average number of four bars on each feather, of which the two anterior are wider and more rufous.

This specimen resembles the rufous phase of "*cassini*" very much more than that of "*guatemalæ*", but is very much larger in all its dimensions.

A young bird, from Costa Rica, in the collection of Messrs. Salvin and Godman, differs from the adult as follows: ground-color light-buff, deepest above, relieved by narrow transverse bars of dusky, equally distinct above and below.

List of Specimens Examined.*

Museum No.	Museum.	Sex.	Locality.	Date.	Wing.	Tail.	Culmen.	Tarsus.	Middle toe.
12400	U. S.	♂ r.	Buenos Ayres		6.55	4.00	.58	1.10	.82
16431	U. S.	♂ g.	Paraguay	June, 1859	6.55	4.00	.58	1.20	.90
16430	U. S.	♂ g.	Brazil	Aug., 1859	6.40	4.05	.60	1.20	.85
—	S. & G.	juv. b.	do		7.00	4.30	.65	1.20	.90
—	S. & G.	— br.	do		6.65	4.20	.60	1.30	.....
—	S. & G.	— gr.	Brazil (Bahia)		6.25	4.00	.57	1.20	.85
—	S. & G.	— br.	do		6.20	.....	.60	1.20	.90
—	S. & G.	— br.	do		6.00	3.80	.55	1.10	.85
—	S. & G.	ad. r.	Brazil (St. Catherine's)		7.90	5.20	.65	1.40	1.00
—	S. & G.	ad. b.	Brazil		6.90	4.40	.....	1.28	.95
—	G. N. L.	ad. g.	do		6.60	4.00	.52	1.20	.85
—	G. N. L.	♂ r.	Brazil (Bahia)		6.25	3.70	.52	1.05	.75
—	G. N. L.	♂ r.	do		6.40	4.00	.52	1.20	.....
50946	U. S.	♂ g.	Southern Brazil		7.50	4.90	.65	1.50	1.00
7805	M. C. Z.	ad. g.	Brazil (Pernambuco)		6.10	3.80	.60	1.15	.85
30966	U. S.	ad. r.	Ecuador (Napó)		6.80	4.30	.....	1.30	.98
—	S. & G.	♂ r.	Columbia (Medellina)		7.00	4.20	.60	1.20	.98
—	S. & G.	♂ r.	do		7.50	4.60	.70	1.28	.98
—	S. & G.	ad. g.	Columbia (Bogotá)		7.40	4.30	.60	1.15	1.00
—	G. N. L.	ad. g.	do		7.30	4.50	.55	1.25	.90
2270	R. R.	ad. g.	Guatemala		7.15	4.40	.65	1.20	.95
30416	U. S.	ad. g.	Costa Rica (San José)		7.00	4.10	.58	1.12	.90
67876	U. S.	juv. b.	Costa Rica .....		.....	.....	.....	.....	.....
67877	U. S.	juv. b.	do .....		.....	.....	.....	.....	.....

* In these tables, the initials in the column headed Museum stand for the following: "U. S.,"=United States National Museum; "S. & G.,"=Museum Salvin & Godman; "G. N. L.,"=Museum of George N. Lawrence, esq.; "M. C. Z.,"=Museum of Comparative Zoology, Cambridge, Mass.; "R. R.,"=Museum of R. Ridgway. In the next column, the letters *g*, *r*, and *b* indicate the gray, rufus, and brown (or intermediate) phases respectively. The measurement of the culmen does not include the cere; the tail is measured to the extreme base of the coccyx, and the middle toe to the base of the claw.

β. atricapillus?

? *Strix atricapilla*, "NATT.," TEMM., Pl. Col. II, 1838, pl. 145.

Scops atricapilla, STEPHENS, Shaw's Gen. Zool. XIII, pt. 2, 1826, p. 51, pl. 39.—CUV., Règ. Anim. ed. 2, 1829, 347.—BONAP., Consp. I, 1850, 46.—KAUP, Contr. Orn. 1852, 112.—STRICKL., Orn. Syn. I, 1855, 202.—BURM., Th. Bras. II, 1856, 128.

Ephialites atricapilla, GRAY, Genera B. I, 1844, 38, pl. 13, fig. 2 (head).—PELZ., Orn. Bras. 1870, 9 (?).

Megascops atricapilla, KAUP, Trans. Zool. Soc. Lond. IV, 1859, 228.

Asio atricapillus, BONAP., Rev. et Mag. de Zool. 1854, 543.

? *Ephialites watsoni*, CASS., Pr. Acad. Nat. Sci. Phila. IV, Dec. 1848, 123; Journ. Phila. Acad. II, 1852, 95, pl. xii, fig. 1.

Scops watsoni, BONAP., Consp. I, 1850, 46.—GRAY, Hand-l. I, 1869, 47.

Asio watsoni, BONAP., Rev. et Mag. de Zool. 1854, 543.

DIAGNOSIS.—*Adult male, gray phase* (Mus. O. S. & F. D. G., Engento do Gama, Brazil, Aug. 18, 1826; Natterer).—Wing, 6.80; tail, 4.00; culmen, .55; tarsus, 1.15; middle toe, .80. Facial circle, ear-tufts, and pileum sooty-blackish, on the latter broken by minute grayish and faint fulvous mottling, this prevailing on the forehead and eyebrows; outer webs of ear-tufts nearly uniform blackish, but inner webs conspicuously spotted or indented with pale fulvous and whitish. Orbital region dusky—conspicuously so in front of and above the eye—the face growing paler on the cheeks, next the blackish facial ring, where the color is pale grayish,

indistinctly undulated with darker. Occiput crossed by a quite conspicuous light-colored band, the feathers of which have the basal portion pale fulvous and the terminal portion whitish, with irregular dusky bars. Upper parts in general finely mottled grayish-brown, with indistinct streaks and zigzags of dusky and minute mottlings of very pale ochraceous; outer webs of scapulars whitish, more or less stained with buff. Tail dusky, with about seven bands of pale fulvous, each inclosing a narrower and more irregular dusky band; outer webs of primaries marked with quadrate spots of dusky and pale fulvous, the latter smallest, growing deeper-colored toward the shaft, and having occasional dusky mottlings centrally, the former mottled with fulvous gray along the edges of the feathers. Lower parts uniform pale dull buff, the feathers with narrow, but distinct, dusky, mesial streaks, and with scattered, irregular cross-bars of the same color, the latter averaging about *two* on each feather, and situated near the end; on the breast these markings more numerous and irregular, and the general surface broken by irregular spots of white. Tarsi pale buff, with faint mottlings of rusty-brown on the outer side; under tail-coverts with a single faint spot at the end of each feather.

REMARKS.—The appearance of this owl is peculiar from the dusky coloring of the face, especially around the eyes, the peculiar shade of the pale buff lower parts (which lacks the bright orange tint of other races), the sparseness of the markings below, and in the pinkish tinge of the axillars and under wing-coverts.

While it is all but certain that the specimen described above is the same as *Ephialites watsoni*, Cassin, there is considerable doubt as to its being equivalent to *Strix atricapilla*, Temm. The plate of the latter represents a much smaller bird, with altogether grayer tints above, and pure white, instead of fulvous, beneath. In fact, this plate calls instantly to mind the form described in this paper as *S. cassini* (see page 102), and were it not that the habitat of Temminck's bird is given, on good authority, as Brazil, I should not hesitate to identify it with the latter form. The writer examined some years ago the type-specimens of *Ephialites watsoni*, in the museum of the Philadelphia Academy, and as he recollects them they correspond quite closely, if not entirely, with the specimen described above. Still, they may be somewhat different. The figure given by Cassin in the "Journal" of the Academy (p. xii, fig. 1) is extremely inaccurate as regards the details of coloration; but it may be observed that the coloring represents almost exactly the peculiar shades which we consider one of the chief characteristics of the present form. The following is the original description of *Ephialites watsoni*, in full:—

"Summit of the head black, with a few very minute pale spots, more numerous on the front and eyebrows. Shorter feathers of the ear-tufts black, others black also, but with their inner webs spotted or mottled with white. A semicircle above the eye, extending to the ear-tufts,

black; rigid feathers at the base of the bill black, with pale grayish terminations; feathers immediately below the eye gray, mottled and broadly tipped with black.

“Discal feathers grayish white, many of them speckled, and all tipped with black, presenting a white and black semi-collar or ruff on each side of the neck. Plumage of the throat with fine alternate bars of black and nearly white.

“Neck above with a well-defined collar, the feathers composing which are strongly fulvous, terminated with white and speckled with black.

“Back, rump, tail, and wing-coverts mottled and freckled with grayish white, upon a black ground, many of the feathers having about three to five very irregular transverse bands of whitish; on the wing-coverts and back some of the pale marks are almost circular with black centres; others are of irregular form also enclosing centres of black.

“External webs of the primaries black, with subquadrate nearly white bars, nearly all of which have black centres, assuming, also, a more or less well defined square form. Internal webs of primaries with alternate bands of different shades of black.

“Breast and entire inferior parts pale fulvous, every feather conspicuously marked on the shaft longitudinally with black, and with very irregular transverse bands and irregularly mottled with black; the black markings most numerous and most irregular on the breast. Many of the feathers on the breast with very pale, nearly white spots, having somewhat the appearance of being distributed in pairs.

“Tail black, with about seven or eight narrow irregular grayish bands, many of which have central lines of black.

“Tarsi feathered to the toes, pale fulvous white, mottled with black.

“Bill horn color at the base, whitish at the tip.

“Total length (of skin) about $9\frac{1}{2}$ inches, wing 7, tail $3\frac{1}{2}$ inches.

“Younger? Plumage above paler, with small spots and minute freckles of grayish white, scarcely assuming the appearance of bands.

“Breast with the dark markings predominating, and tending to form a broad pectoral band; lower parts of the body bright fulvous, with black marks.

“*Hab.* South America.

“This species bears some resemblance to *Ephialites atricapilla*, (Natt.) Temm. pl. col. 145, but is much larger, and has only one nuchal collar. The general color above is also much darker; the fulvous colouring of the inferior surface of the body is also a striking difference.

“One specimen of this species in the Rivoli collection is labelled ‘Ore-noque’, and another in the collection of the Academy is probably from South America.”

The description given in the Journal of the Philadelphia Academy (vol. ii, p. 95) is essentially the same as the above.

γ. ustus.

Scops usta, SCL., P. Z. S. March 9, 1858, 132 (*Ega, Upper Amazons*.—Mus. Norwich); Trans. Zool. Soc. Lond. IV, 1859, 265, pl. lxi.—GRAY, Hand-l. I, 1869, 47.—BOUC., Cat. Av. 1876, 91.—SCL. & SALV., P. Z. S. 1866, 198; Ex. Orn. 102. .

Scops brasiliensis, subsp. *a. Scops ustus*, SHARPE, Cat. Strig. Brit. Mus. 1875, 111 (*Sarayacu and Chamicuros, E. Peru; Venezuela?*).

Habitat.—Upper Amazonia (*Ega; SCL., l. c.; Chamicuros and Sarayacu, E. Peru, and Venezuela?*; SHARPE, *l. c.*).

This form I have never seen, and therefore have to give descriptions at second hand. The original one (*Sclater, l. c.*) is as follows:—

“Supra saturate castaneo-brunnea, plumis omnibus nigro subtilissime vermiculatis; facie et gula pure castaneo-brunneis, hac pallidiore: linea post regionem auricularem, cornuum capitis extantium marginibus latis et pileo supero nigris: alarum pennis pallide castaneo-brunneis nigro punctulatis, intus autem ochraceo-albidis, quinque et sex fasciis latis in pogonio externo, maculas quadratas efficientibus, nigris trans-vittatus; cauda ex eodem colore sed fasciis nigris pæne obsoletis: subtus claris brunnea, lineis angustis longitudinalibus, scapus plumorum occupantibus, nigris parce notata: tectricibus alarum inferioribus sordide albis: tarsis pallide fulvis: rostro et pedibus flavis.

“Long. tota 8.5, alæ 7.0, caudæ 4.0, tarsi 1.2.

“*Hab.* *Ega, on the Upper Amazon (H. W. Bates).*”

The above description, and the plate accompanying it, represent a form of *Scops* of which I have never seen typical examples. It seems clearly to belong to *S. brasiliensis*, of which it is probably a peculiar “strain”—hardly to be called the rufescent extreme (since the latter is to be found in the bright rufous phase of “*guatemalæ*”), but rather showing a very highly-colored condition, in which the rufous tint is spread rather than intensified, so as to more or less completely obliterate the usual white markings. The case seems to be somewhat parallel to that of *S. kennicotti* as compared with *S. asio*, and is probably more or less closely connected with climatic peculiarities of the district inhabited by the race; for instance, an excessive rain-fall and a prevalence of denser and darker forests than generally exist to the eastward.

According to Mr. *Sclater (l. c.)*, this form “is distinguishable from every South American member of the genus . . . by its rich brown coloring above and below, and by the longitudinal lines below not being crossed as in *S. choliba* and *S. atricapilla*.”

Among the numerous specimens of *Scops brasiliensis* in the series before me, is one which seems to approach quite nearly to the characters of this race, being devoid of sharply defined black bars below, where, in their place, are extremely irregular ragged zigzags of rusty rufous, the blackish shaft-streaks being unusually broad, and externally suffused with rufous; only the terminal half, or exposed portion, of the abdominal feathers is white, the entire breast, tibia, and tarsus having a uniform deep ochraceous ground-color. Among other differences from

typical *brasilianus* may be mentioned the deep buff or ochraceous outer webs of the scapulars, inner webs of the ear-tufts, and indeed all the markings of the upper surface, which are white in that form; these peculiarities being among the distinguishing features of the *ustus* type. This specimen, however, is from Sta. Catarina, S. E. Brazil. It belongs to the collection of Messrs. Salvin and Godman.

In his description of this form, Mr. Sharpe describes what he terms its "gray phase", but which seems to be decidedly more brown than gray, and, to judge from the description, quite different from anything I have seen. I quote the essential parts of the descriptions of this form given by Mr. Sharpe:—

"*Adult male* (gray phase). General color above dull earthy brown, so finely vermiculated as to appear almost uniform at first glance, a few fulvescent cross markings more conspicuous on the scapulars and secondaries, very slightly indicated on the hind neck, and not forming a distinct collar; crown of head rather blacker than the back, the feathers infinitesimally freckled with sandy rufous, the ear-tufts blackish, scarcely vermiculated at all; ear-coverts sandy brown, indistinctly barred across with blackish brown, and narrowly shaft-streaked with white; rest of under surface ochraceous buff, thickly sprinkled with wavy lines and vermiculations of dark brown, especially on the side of the chest, some of the breast feathers streaked with black and barred across with white, the flanks scantily barred with dark brown, inclining to white near the tip, the markings scanty, as also on the under tail-coverts Total length 9.5 inches, wing 6.6, tail 3.9, tarsus 1.3.

"*Adult female* (rufous phase). General characteristics as in the gray phase, but rufous where the other bird is brown, and slightly more mottled on the upper surface with rufescent cross bars; below nearly uniform rufous, deeper on the chest, some of the feathers slightly streaked with black, more narrowly on the breast and abdomen; on the chest a few dull brown vermiculations, the abdomen indistinctly barred with fulvous. Total length 9 inches, wing 6.55, tail 3.4, tarsus 1.3.

"*Obs.* The principal characteristics of this race are the uniformity of its upper surface, and the comparative absence of streaks; scapulars fulvescent, not white. These remarks apply both to the brown and rufous phases, neither of which shows any collar on the hind-neck.

"*Hab.* Upper Amazons."

δ. guatemalæ.

"*Scops brasilianus*", LAWRE, Ann. Lyc. N. Y. IX, 1868, 132 (*Sau José, Costa Rica*).—SALVIN, P. Z. S. 1870, 216 (*Veragua*).

Scops brasilianus, subsp. β . *Scops guatemalæ*, SHARPE, Cat. Strig. Brit. Mus. 1875, 112, pl. ix, both phases (*Guatemala; Acoyapa, Nicaragua; Costa Rica; Veragua*).

Scops guatemalæ, BOUC., Cat. Av. 1876, 91 (*Central America*).

REMARKS.—In Central America, from Veragua to Guatemala, a form prevails which, in the absence of extralimital specimens or of examples

ferruginous, with of the other styles, I s
 in the middle port species. This style is
 are white, with the type (*l. e.*), to which probably as many as 90 per ce.
 streaks are rendered thought from those countries may be referred. It hap-

Regarding the t while absolutely typical specimens of the "*brasili-*
 p. 114):— ur from both these countries, specimens of typical

"The rufous phe appear in Brazil, thus annulling the importance of geo-
 that I have seen tions; e, as a further proof of specific identity,
 color, with the head mens cannot be referred to either one or the
 to a blackish patch; form which are in every respect intermediate,
 black, as is also the

tions of bars." As sure rieties are, a confusedly-mottled.
 sometimes assume th, lo age, and a darker upper surface

A specimen in th to oness and clearness of all the u
 im'Oca; Mus. Salvin ze form; the bright orange-buff bases
 of ns described above, , so usual (*but not constant*) in typical

speck shaft-streaks are e, is also absent in all the specimens
 I hav and throat, the co ty, the individual variations in "*gua-*
temala e, and the paler tal both as to the shades of coloration and
 the pat red with a rufous s rincipal of these are the following:—

Gray ences are M. Salvin & Godman, Coban, Vera

Jan. — ing pl Pre ing color above pale bro. ansb, e.

coarsely pale buff and grayish-white, and with larger and
 very irre spots of blackish, these nowhere assuming the form of
 shaft-str even on the crown; sides of the forehead or "eyebrows"
 appreci ; Sit not abruptly, paler (mottled whitish). Face, throat,
 sides of neck, and jugulum dirty whitish, finely and quite regularly
 undulat transversely with brownish, the dusky facial circle not dis-
 tinct. Rest of lower parts soiled white, the whole surface relieved by
very irregular, ragged, and confused zigzag lines of dusky brownish, the
 feathers showing very irregular, but quite distinct, mesial, blackish
 streaks, with which the transverse markings unite.

The above description is of a specimen representing the extreme gray-
 ish phase, so far as shown by the series before me; others, in Messrs.
 Salvin and Godman's collection, exhibit a gradual transition to the
 rufous phase, scarcely two specimens being alike in the precise shade
 of brown, while positively none agree in the details of pattern. Thus,
 two males from Veragua ("*Arcé, 2401*", and "*Arcé, 1806*") have the
 upper parts so nearly devoid of coarse mottlings as to appear of a nearly
 uniform light number-brown. On the other hand, a specimen from Vera
 Paz ("*O. S. 2348*") has the general dusky coloring above relieved by
 very conspicuous, large, and, in places, regularly-oblong, transverse
 spots of pale fawn-color. In the latter specimen, the white on the outer
 web of the scapulars is broken by transverse wide bars of mottled fawn
 and dusky, while in nearly all the others this white is unbroken, having
 only the terminal blackish border common to nearly all the species of the
 genus.

typical *brasilianus* may be seen as to the markings on webs of the scapulars, inner coverts, and extremely rarely frequently appearing unconfused; in two specimens one from Choctum, Vera Paz, the other from Bahia, and the transverse markings are much fewer, wider, and regular, the average interval being, in the latter specimen, .25 of an inch!

The most aberrant specimen in the series (one from 1873"), which, however, appears, from the nature of a young bird. In this all the markings of the feathers, there being no longitudinal streaks on the feathers of the breast. The color of the soffit, with those of others in the series, is almost uniform. A specimen of gray plumage from Mexico (Messrs. John Xantus), agrees strictly with the hind color described above in the markings of the feathers blackish. The are grayer, with conspicuous mesial streaks of rufous form, agreeing exactly in this respect. One from Pernambuco, Brazil, in the collection of the Comparative Zoölogy (No. 7805).

The extreme rufous phase is represented by a specimen from Guatemala (belonging to the Boston Natural History). These are bright brick-rufous above, the scapulars pure white, in strong contrast, and the feathers of the pileum with mesial streaks of black,—thus very closely resembling the corresponding phase of *S. asio*. The face, throat, and jugular are also of a paler, but quite uniform, rufous, relieved by few or no markings of any kind; the rest of the lower parts are white, the feathers with distinct mesial streaks of dusky brownish and faint and ragged cross-bars of pale rufous. These specimens resemble the extreme rufous phase of "*brasilianus*", as described above, except that there are no distinct blackish streaks on the back, where also the feathers are devoid of the basal fulvous spots, while the bars on the lower surface are much less distinct and regular.

Two other specimens of this phase in the collection of Messrs. Salvin and Godman are quite different. One, from Coban, Vera Paz, is a young bird, with remnants of the immature plumage. The new dress however, largely prevails. In this example, the whole dorsal region is varied by an exceedingly faint, yet obvious spotting of a paler rufous, and narrow blackish shaft-streaks, and the lower parts are much more distinctly and regularly barred, the bars being, moreover, of a considerably darker shade. It thus approximates quite closely to the rufous specimen of "*brasilianus*" above referred to. The other specimen is from Las Salinas, Vera Paz ("March, O. S. 2349"), and is still more different. The upper parts are so dark as to be almost chestnut, while the back is distinctly spotted with black. The breast is nearly uniform dark

distinct and wide blackish shaft-streaks, and broken
ion by whitish bars; the remainder of the lower parts
e transverse bars of *blackish* so broad that the mesial
ed nearly obsolete.

rufous phase of this variety, Mr. Sharpe remarks (*l. c.*

ase of *S. guatemala* is quite different from anything
rom South America, being entirely of a foxy rufous
l never darker than the back or showing any approach
the back is generally rather narrowly streaked with
head; and there are in some examples slight indica-
stated on p. 94, however, the Brazilian bird does
his bright "foxy rufous" phase.

ne bright rufous phase from Jalapa (S. E. Mexico;
D. ... & Godman) differs from the two Guatemala speci-
me ... in the paler rufous of the pileum (where the usual
black ... almost entirely absent), the paler rufous of the
face; ...arser and more ragged markings of the lower
surface ... In other respects, however, it is identical.
Compa ... specimen of *S. cassini*, from the same locality,
the differ ... much more conspicuous. The latter is more like the
correspondin ... phase of *S. barbarus*, being distinctly variegated above
with paler spotting and numerous blackish shaft-streaks, and the *pictura*
of the lower parts more distinct.

List of Specimens Examined.

26 L.	Guatemala		G. N. L.	— g.	6.80	3.90	.58	1.30	.90
— L.	do		do	— g.	6.55	3.80	.58	1.10	.....
2401 Arcé.	Chitra, Veragua	—, 1869	S. & G.	♂ g.	6.20	3.60	.55	1.12	.85
2348 O. S.	Coban, Vera Paz	—, 1860	do	— g.	6.50	4.00	.52	1.20	.90
—	Vera Paz, Guatemala		do	— g.	6.60	4.10	.55	1.15	.85
1806 Arcé.	Choctum, Vera Paz	Feb., 1862	do	— g.	6.60	3.90	.58	1.18	.80
1873 Arcé.	Calovevora, Veragua	—, 1862	do	♂ br.	6.60	3.85	.58	1.15	.85
—	Chiriqui		do	Juv. gr.	6.20	3.50	.60	1.10	.80
—	Bahia, Brazil		do	Ad. gr.	6.50	4.00	.55	1.25	.80
2349 O. S.	La Salinas, Vera Paz	Mar., 1860	do	Ad. red.	6.50	4.00	.55	1.18	.85
—	Coban, Vera Paz	—, 1859	do	Ad. red.	6.50	3.90	.....	1.20	.85
—	Guatemala		Bost. Soc.	Ad. red.	6.30	3.80	.58	1.20	.82
—	do		do	Ad. red.	6.48	3.70	.55	1.30	.82
23793	Mazatlan, W. Mex		U. S.	Ad. gr.	6.00	3.70	.50	1.18	.82
—	E. Mexico (Jalapa)	—, 1872	S. & G.	Ad. red.	6.20	3.60	.55	1.25	.80
55978	Costa Rica		U. S.	Ad. gr.	6.60	3.90	.....	.....	.....

e. cassini.

"*Scops atricapillus* (NATT.) STEPH.", RIDGW., in B. B. & R. Hist. N. Am. B. III, 1874, 48
(foot-note).

Scops brasilianus, ♀, *cassini*, RIDGW., MS.

Habitat.—Eastern Mexico (Mirador; Jalapa).

DIAGNOSIS.—Wing, 5.80–6.10; tail, 3.20–3.50; culmen, .45–.50; tarsus, 1.20; middle toe, .80.

Gray phase; adult.—Above grayish-brown, finely mottled with lighter and darker shades, the general dusky brownish hue interrupted by two conspicuous lighter bands, one across the nape, and the other across

the occiput, where the pale brownish buff spots are very large and the darker markings correspondingly reduced in size. Beneath whitish, the feathers with ragged mesial streaks of blackish and transverse vermiculations of the same.

Rufous phase; adult.—Above cinnamon-rufous, with blackish shaft-streaks. Beneath white, with blackish mesial streaks and irregular transverse base of rufous and blackish.

REMARKS.—This very distinct race, which I refer somewhat doubtfully to *S. brasilianus*, so closely resembles *S. maccalli*, both in size and colors, that, were it not for the perfectly naked toes, certain specimens of the two could scarcely be distinguished. From *S. barbarus*, with which it agrees in the nakedness of the toes, it may be readily distinguished by the much stouter feet (both relatively and absolutely), as well as by certain well-marked differences in the coloration. Of the other races of *brasilianus*, it most closely resembles the one we have described under the name of *atricapillus* (see p. 95), having, like that style, a very distinct lighter nuchal collar. It is considerably smaller, however, and presents well-marked differences in coloration, which may be expressed as follows:—

S. ATRICAPILLUS.—Wing, 6.80; tail, 4.00; tarsus, 1.15; middle toe, .80. Ground-color below pale buff; face and crown nearly uniform dusky. *Hab.*, Brazil.

S. CASSINI.—Wing, 5.80–6.10; tail, 3.20–3.50; tarsus, 1.20; middle toe, .80. Ground-color below white; face grayish or brownish white, coarsely barred with dusky; crown coarsely spotted with blackish, pale brown, and grayish-white. *Hab.*, Eastern Mexico.

It will be seen by the above, that while *cassini* has the wing and tail very much shorter than in *atricapillus*, the feet are, on the other hand, actually longer, the two birds thus having quite different proportions, in view of which fact it may ultimately prove advisable to recognize in *S. cassini* a distinct species. Compared with *S. barbarus*, which is sometimes exceedingly similar in plumage, the difference in the feet is still more striking; while the only other form which resembles it—*S. maccalli*—has the toes distinctly bristled, whereas in the present form they are perfectly bare.

27115	U. S.	Gr. ad.	Mirador, Mexico		6.10	3.50	.50	1.20	.80
33556	U. S.	Gr. ad. ♀	.....do	Nov. —, 1863	5.90	3.40	.45	1.20	.80
12372	M. C. Z.	Ruf. ad.	Jalapa, Mexico	Apr. 9, 1869	5.80	3.20	.50	1.20	.80

3. SCOPS BARBARUS.

“*Scops flammeola*”, SALVIN, Ibis, 1861, 355 (*nec* Licht.).

Scops barbarus, SCL. & SALV., P. Z. S. 1863, 57: Ex. Orn. I, 1868, 101, pl. li; Nom. Neotr. 1873, 117 (*Guatemala*).—GRAY, Hand-l. I, 1869, 47.—SHARPE, Cat. Strig. Brit. Mus. 1875, 107 (*Sta. Barbara, Vera Paz, Guatemala*).—BOUC, Cat. Av. 1876, 91.

Habitat.—Guatemala.

DIAGNOSIS.—Wing, 5.25–5.60; tail, 2.90–3.10; culmen, .45; tarsus, 1.00–1.05; middle toe, .70–.75. *Shafts of the auriculars produced into*

long, slender, hair-like bristles, forming a conspicuous ruff round the face, the anterior side concave. *Gray phase (adult)*:—Above brown, thickly spotted with black, the black prevailing on the pileum; outer webs of scapulars white, bordered terminally with black. Beneath whitish, the feathers marked with transverse bars and mesial stripes of black, the white of opposite webs having the form of roundish or oblong spots. *Rufous phase (adult)*:—Above cinnamon-rufous, all the feathers (except upper tail-coverts) with wide and distinct mesial streaks of black. Beneath white, the feathers with shaft-streaks of black and wide cross-bars of rufous having black borders.

REMARKS.—This very distinct species is apparently most nearly related to *S. flammeolus*, with which it agrees in the extreme weakness of the feet. It differs, however, from that form in being of much stouter build, more “fluffy” plumage, the head appearing larger and the body stouter in consequence of the greater length and looseness of the feathers. The plumage also is quite different, the markings being altogether coarser. The differences between the two have been more precisely expressed on a preceding page. From *S. cassini*, which it sometimes very closely resembles in colors, it may be immediately distinguished by its much weaker feet and different proportions, as follows:*

SCOPS BARBARUS.—Wing, 5.25–5.60; tail, 3.10; tarsus, 1.00–1.05; middle toe, .70–.75. *Hab.*, Highlands of Guatemala.

SCOPS CASSINI.—Wing, 5.80–6.10; tail, 3.20–3.50; tarsus, 1.20; middle toe, .80. *Hab.*, Eastern Mexico (Vera Cruz, etc.).

42776	U. S.	Ad.	Central Guatemala . . . . .	..... (t).....	5.60	3.10	.45	1.00	.75
—	S. & G.	Ad. gr.	Vera Paz, Guatemala . . .	—, 1862	5.60	3.10	.45	1.00	.70. [Type]
—	S. & G.	Ad. r.	Sta. Barbara, Guatemala.	Apr.—, 1860	5.35	3.10	.45	1.00	.70. [Type.]

4. SCOPS FLAMMEOLUS.

“*Strix flammeola*, LICHT., MS., in Mus. Berol., undè.”

Ephialites flammeola, LICHT., Nom. 1854, 7.

Megascops flammeola, KAUP, Trans. Zool. Soc. Lond. IV, 1859, 226.

Scops flammeola, SCL., P. Z. S. 1868, 96.—SCHLEG., Mus. P.-B. Oti, 1862, 27; Rev. Acc. 1873, 14.—SCL. & SALV., P. Z. S. 1868, 57; Ex. Orn. VII, July, 1868, 99, pl. 1; Nom. Neotr. 1873, 117 (*Mexico; Guatemala*).—GRAY, Hand-l. I, 1870, 47.—ELLIOT, Illustr. Am. B. I, 1869, pl. xxviii.—COUES, Key, 1872, 203; Check List, 1873, 65, No. 319.—RIDGW., in B. B. & R. Hist. N. Am. B. III, 1874, 58, fig. (*Guatemala; Mexico; Sierra Nevada, n. to Ft. Crook, Cal.*, where breeding); Field & Forest, June, 1877, 210 (*Boulder Co., Col.*; March.—“Iris unbr-brown”!); Orn. 40th Par. 1877, 335, in text (*Nevada, Cal.?*).—HENSHAW, Orn. Wheeler’s Exp. 1874, 135 (30 m. south of *Apache, Ariz.*; Sept. 11).—SHARPE, Cat. Strig. Brit. Mus. 1875, 105 (*Dueñas, Guat.; W. Mexico; Valley of Mexico*).—BOUC., Cat. Av. 1876, 91 (*Mexico*).

Flammulated Owl, COUES, l. c.

Feilner’s Owl, B. B. & R., l. c.

Habitat.—Highlands of Guatemala and Mexico, north to latitude 40° in the Sierra Nevada and Rocky Mountains of the United States.

* SCOPS FLAMMEOLUS.—Wing, 5.10–5.60; tail, 2.60–3.00; tarsus, .90–1.00; middle toe, .60–.68.—*Hab.*, Highlands of Guatemala, Mexico, and Western United States north to about 40°.

DIAGNOSIS.—Wing, 5.10–5.60; tail, 2.60–3.00; culmen, .35–.40; tarsus, .90–1.00; middle toe, .60–.68. *Adult*.—Above finely-mottled grayish, the feathers with irregular blackish shaft-streaks. *Outer webs of scapulars more or less strongly washed with orange-rufous* on a white ground; outer webs of lower middle wing-coverts white, forming conspicuous spots. Ground-color below white, the feathers with very distinct mesial black streaks, from which proceed narrower transverse lines, mostly toward the end of the feathers. *Juv.*—Above finely-mottled grayish, but the mottlings all transverse and the shaft-streaks wanting; below coarsely and rather dimly barred with dark grayish on a dull whitish ground, and with no longitudinal markings. *Iris umber-brown!* (*vide* Mrs. M. A. Maxwell).

REMARKS.—Specimens vary chiefly in the amount of rufous wash on different parts of the plumage. A wash of this color is usually present on the pileum, while it sometimes spreads over the face, throat, and back; Mr. Sharpe (*l. c.*) even mentions a specimen, from Guatemala, which is entirely orange-rufous above, and strongly pervaded by the same color on the lower surface, especially on the throat, where it forms a large patch. He also mentions “a perfectly gray bird, on which scarcely a tinge of orange coloring remains, either above or below, while the whole appearance of the specimen is dingy, owing to the closeness and frequency of the vermiculations.” I have never seen a specimen representing either of these extreme phases, all the specimens before me (seven in number) being of average coloration.

42157	U. S.	Ad.	Orizaba, Mex.	Feb. 3, 1865	5.50	2.80	.40	.90	.65
24172	U. S.	♂ juv.	Fort Crook, N. Cal.	Aug. 23, 1860	5.50	3.00	.35	.92	.60
—	U. S.	Ad.	30 miles S. of Apache, Ariz.	Sept. 11, 1873	5.28	2.73	.....	.....	.....
—	M. A. M.	Ad.	Boulder, Colorado* .....	.....	5.50	3.10	.35	.95	.60
—	S. & G.	Ad.	Duenas, Guatemala	Jan. —, 1863	5.50	2.90	.40	1.00	.68
—	S. & G.	Ad.	do	—, 1863	5.50	2.90	.40	.90	.60
—	S. & G.	Ad.	Valley of Mexico .....	.....	5.10	2.75	.35	.90	.60

* *Iris umber brown!*

C.—*Toes partly covered with hair-like, bristly feathers, the terminal scutellæ only completely naked.*

In this group are included only *S. asio*, *S. trichopsis* (?), and *S. cooperi*, all of which belong to the country north of the Isthmus of Panama, there being, so far as known, no South American species with hairy toes. The species of this group may be distinguished as follows:—

S. ASIO.—Bars of the lower surface coarse, and frequently double, especially on the flanks. *Hab.*, Whole of the United States; south to Guatemala; north to Sitka.

S. TRICHOPSIS?—Bars of the lower surface fine, nearer together than in *S. asio*, and more uniformly distributed. General aspect paler, with much finer vermiculations.

S. COOPERI.—Bars of the lower surface in form of dense, fine, zigzag vermiculations.

The differences between *Scops asio* and the species here called *S. trichopsis* do not, it is true, seem to be very great, according to the characters given above. It is not the *amount* of difference, however, between these two forms which has induced me to recognize them as distinct species, but the *constancy* of the differences pointed out; *S. asio* having in every one of its numerous geographical and local races the bars of the flanks, etc., coarse and frequently double, while all the specimens of *S. trichopsis* which have come under my notice have these bars much finer and denser, with no disposition to be arranged in pairs. Mr. Sharpe also lays stress upon the same differential characters.

5. SCOPS ASIO.

a. asio.

Strix asio [= *rufous phase*], LINN., S. N. I, 1766, 132 (based on *Noctua aurita minor*, Catesb., Carol. I, 73.—*Asio scops carolinensis*, Briss., Orn. I, 497).

Scops navia [= *gray phase*], GMEL., S. N. I, i, 1788, 289 (based on *Mottled Owl*, Arct. Zool. II, 1785, 231, no. 118, t. xi).

Bubo striatus [= *gray phase*], VIEILL., Ois. Am. Sept. I, 1807, 54, pl. 21.

? "*Ephialites ocreata*, LICHT., in Mus. Berol."

β. maccalli.

Scops McCallii, CASS., Illustr. B. Cal. Tex. &c. July, 1854, 180; in Baird's Birds N. Am. 1858, 52.

Scops asio, var. *enano*, "LAWR., MS.," Ridgw., Bull. Essex Inst. V, Dec. 1873, 200.

γ. kennicotti.

Scops kennicottii, ELLIOT, Pr. Ac. Nat. Sci. Phila. 1867, 69; Illustr. Birds Am. 1869, p. xxvii, pl. ii.

δ. floridanus.

Scops asio, var. *floridanus*, RIDGW., Bull. Essex Inst. V, Dec. 1873, 200.

ε. maxwellia.

Scops asio, *ε. maxwellia*, RIDGW., Field and Forest, June, 1877, 210, 213.

The chief differential characters of the several geographical races of this widely distributed owl may be expressed as follows:—

Colors smoky-brown or dusky umber, and pale fulvous, with little or none of pure white. Outer webs of scapulars pale fulvous. Never bright rufous.

1. Wing, 6.85–7.60; tail, 3.50–4.50. Apparently not varying to rufous *Hab.*, The Northwest coast, from Oregon to Sitka; Idaho.....*γ. kennicotti*.

Colors much lighter, some shade of ashy-gray or grayish-brown above, pure white beneath. Outer webs of scapulars pure white. Sometimes bright rufous, with white and black markings.

2. Wing, 6.10–7.80; tail, 3.30–4.35. Varying, in the Eastern, *but not in the Western*, Province, to bright rufous. In the rufous phase, white prevailing on the lower surface, where the red markings are not broken into transverse bars. *Hab.*, Whole of the United States, except the high western mountains, and the Gulf coast.....*a. asio*.

3. Wing, 5.50–6.00; tail, 2.75–3.10. Varying to bright rufous; in the rufous phase, red prevailing on the lower parts, where the markings are much broken into transverse bars. *Hab.*, Florida and S. Georgia.....*δ. floridanus*.

4. Wing, 5.50-5.90; tail, 2.80-3.50. Varying to bright rufous; gray phase like that of *asio* and *floridanus*, but the mottling above much coarser, and the nape with a strongly indicated collar of rounded white spots, in pairs, on opposite webs. Red phase much more spotted above than that of *asio* or *floridanus*. *Hab.*, E. Mexico and highlands of Guatemala.....*β. maccalli*.
5. Wing, 6.80-C.90; tail, 3.90-4.10. Not varying to rufous. General aspect much paler than any of the preceding; above pale ash-gray, or very pale cinnamon-gray, the white of the outer webs of the lateral scapulars very conspicuous, the white spots of the outer webs of the primaries sometimes confluent. Beneath pure white, much more sparsely marked than in *asio* and other races. *Hab.*, Mountains of Colorado.....*ε. maxwellii*.

The characters given above are sufficient to distinguish typical specimens of several well-marked geographical forms of *Scops asio*. It is of course understood that specimens possessing intermediate characters frequently occur; but it is equally true that a very large majority of the specimens from either one of the regions indicated above are typical of the form characteristic of the locality.

a. *asio*.

The Little Owl, CATESBY, Carolina, I, 1731-'48, 7, pl. 7.

Noctua aurita minor, CATESB., l. c.

Asio scops carolinensis, BRISS., Orn. I, 1760, 497.

Le Petit Duc de la Caroline, BRISS., l. c.

Strix asio, LINN., S. N. I, 1766, 132 (based on *Noctua aurita minor*, Catesby, Carol. I, 7.—*Asio scops carolinensis*, Briss. I, 497).—GMEL., S. N. I, i, 1788, 287.—LATH., Ind. Orn. I, 1790, 54; Gen. Hist. I, 1821, 314.—DAUD., Tr. Orn. II, 1800, 216.—SHAW, Gen. Zool. VII, 1809, 229.—WILS., Am. Orn. V, 1812, 83, pl. 42, fig. 1.—TEMME, Pl. Col. II, 1838, pl. 80 (gray phase).—BONAP., Ann. Lyc. N.Y. II, 1826, 36; Synop. 1828, 36; Isis, 1832, 1139.—JARD., ed. Wilson, I, 1831, 307.—AUD., Orn. Biog. I, 1832, 486; V, 1839, 392, pl. 97.—NUTT., Man. I, 1832, 120.—BREWER, ed. Wilson, 1852, 687.—HOBBS., Nat. 1855, 165.

Scops asio, BONAP., Comp. List, 1838, 6; Consp. I, 1850, 45.—LESS., Traité, I, 1831, 107.—KAUP, Contr. Orn. 1852, 112.—CASS., Illustr. B. Cal. Tex. &c. 1854, 179; in Baird's B. N. Am. 1858, 51.—HEERM., Pacific R. R. Rep. II, 1855, 35.—STRICKL., Orn. Syn. I, 1855, 199.—BREWER, N. Am. Oöl. 1857, 65.—BAIRD, Cat. N. Am. B. 1859, no. 49.—?SCHLEG., Mus. P.-B. Oti, 1862, 27; Rev. Acc. 1873, 9.—GRAY, Hand-l. I, 1869, 46.—COOPER, Orn. Cal. I, 1870, 420.—MAYN., Naturalist's Guide, 1870, 131 (*Mass.*).—COUES, Key, 1872, 202; Check List, 1873, 65, no. 318.—B. B. & R., Hist. N. Am. B. III, 1874, 49.—SHARPE, Cat. Strig. Brit. Mus. 1875, 114 (*Delaware; Toronto*).—RIDGW., Bull. Essex Inst. Oct. 1874, 172 (*Sacramento, Cal.*); Orn. 40th Par. 1877, 336, 389, 518, 571 (*Sacramento and Nevada, Cal.*).—D'HAMONDV., Ois. Eur. 1876, — (*Europe*).—BOUC., Cat. Av. 1876, 91.

Bubo asio, VIEILL., Ois. Am. Sept. I, 1807, 53, pl. 21.—AUD., Synop. 1839, 29; Birds Am. I, 1840, 147, pl. 40.—DEKAY, Zool. N. Y. 1844, pl. 12, figs. 25, 26.—GIRAUD, Birds L. I. 1844, 28.—MAX., J. f. O. 1858, 23.

Otus asio, STEPHENS, Shaw's Gen. Zool. XIII, ii, 1826, 57.—SCHLEG., Fauna Japon. 1845, 25.

Asio asio, LESS., Man. Orn. I, 1827, 117.

Ephialites asio, GRAY, Genera B. I, 1844, 38; List B. Brit. Mus. 1844, 96.—WOODH., Sitgreaves's Exp. 1853, 62.

Megascops asio, KAUP, Trans. Zool. Soc. Lond. IV, 1859, 228.

Strix asio, capite aurito, corpore ferruginco, the little screech owl, BARTRAM, Travels, 1791, 289.

Red Owl, PENN., Aret. Zool. II, 1785, 231, pl. xi, fig. 1.

Mottled Owl, PENN., t. c. pl. xi, fig. 2.

Strix varia, GMEL., S. N. I, i, 1788, 289.—LATH., Ind. Orn. I, 1790, 55; Gen. Hist. I, 1821, 321.—DAUD., Tr. Orn. II, 1800, 217.—SHAW, Gen. Zool. VII, 1809, 230.—WILS., Am. Orn. III, 1812, 16, pl. 19, fig. 1.

Asio varia, LESS., Man. Orn. I, 1827, 117.—BONAP., Rev. et Mag. de Zool. 1854, 543.

Otus navius, CUV., Rêg. Anim. ed. 2, 1829, 241.

Surnia varia, JAMES., ed. Wils. I, 1831, 96, 99.

Bubo striatus, VIEILL., Ois. Am. Sept. I, 1807, 54, pl. 21.

"*Ephialites ocreata*, LICHT., in Mus. Berol."

"*Scops asio var. maccalli*", HENSHAW, Orn. Wheeler's Exp. 1874, 135 (*Gila E., Camp Grant, and San Pedro, Arizona*); *ib.* 4to Rep. 1875, 405 (*Arizona and New Mexico*).

Without repeating here a detailed description of the plumages of this form, for which the reader is referred to the "History of North American Birds" (vol. iii, pp. 49-51), a few remarks concerning local and geographical variations may suffice. The most noteworthy point in this connection is the apparently established fact that while this bird very frequently varies to bright lateritious-rufous in the Eastern Province of the United States (this erythrismal phase even very largely predominating in some localities*), it seems *never* to assume this plumage in the Western States and Territories. At the same time, there seems to be no difference whatever in specimens of the gray phase from the Atlantic States and California, as well as other of the Western States and Territories, if we except those districts inhabited by different races (*i. e.*, *kennicotti*, *maxwelliæ*, etc.). There are now before me the following specimens representing the adult of this phase, belonging to my own collection: a pair from Nicasio, California, a male from Sacramento, a male from Arizona (San Pedro River), a female from Southern Illinois, a male from the District of Columbia, and another from Virginia. Of these, the two California specimens and the examples from Illinois and Virginia are so precisely similar that were their labels taken off or interchanged it would not be possible to distinguish them by colors and markings. The Arizona example differs solely in being of a purer ash-gray shade, the others being of a more brownish-gray; the Sacramento specimen is similar to those from Nicasio, only lighter-colored, being a midsummer specimen, in faded plumage, while the others were killed in October, and consequently in possession of the new fall dress. The skin from the District of Columbia differs from the others in having a very decided cinnamon cast to the plumage, thereby exhibiting a ten-

* Whether the relative number of specimens of the two phases in a given locality has anything to do with geographical or climatic considerations, I have not the material to enable me to determine. Certain it is, however, that while in the States bordering the Atlantic the gray phase is generally quite as common as the other, it is so extremely rare in the Lower Wabash Valley that I have seen there but two individuals in the course of many years' observation, the red specimens constituting fully 95 per cent. of all. This has also been the experience of others whom I have questioned regarding the matter.

gency toward the rufous phase; all the markings, however, are as in the grayish birds. The measurements of these specimens are as follows:—

—	R. R.	♂	ad.	Nicasio, Marin County, Cal.....	Mar. 2, 1877	6.30	3.50	.....	.....
—	R. R.	♀	ad.	do.....	Mar. 2, 1877	6.60	3.65	.....	.....
152	R. R.	♂	ad.	Sacramento, Cal.....	June 21, 1867	6.70	3.60	.....	.....
2749	R. R.	♂	ad.	San Pedro River, Arizona.....	Oct. 4, 1873	6.60	3.70	.....	.....
—	R. R.	♀	ad.	Mount Carmel, S. Ill.....	Oct. 7, 1876	6.40	3.50	.....	.....
—	R. R.	♂	ad.	Fairfax County, Virginia.....	Nov. 4, 1876	6.50	3.70	.....	.....
—	R. R.	♂	ad.	District of Columbia.....	Dec. 7, 1874	6.35	3.25	.....	.....

Three specimens in the rufous phase, also in my collection, measure as follows:—

953	R. R.	♂	ad.	Mount Carmel, Ill.....	May 1, 1869	5.90	3.20	.....	.....
954	R. R.	♂	ad.	do.....	July 30, 1870	6.00	3.00	.....	.....
2606	R. R.	♀	ad.	District of Columbia.....	Nov. 8, 1860	6.50	3.60	.....	.....

The first of these specimens inclines very decidedly, both in measurements and plumage, to var. *floridanus*; and, in view of the fact that typical specimens of *Ortyx virginianus floridanus*, *Tinnunculus sparverius isabellinus*, and other Southern forms occur in the same locality, may be perhaps best referred to that form.

β. maccalli.

Scops McCallii, CASS., Illustr. B. Cal. Tex. &c. July, 1854, 180 (*Texas; Northern Mexico*); in Baird's B. N. Am. 1858, 52; ib. ed. 1860, pl. xxxix (part).—BAIRD, Mex. Bound. Survey. II, pt. iv, Birds, 1859, pl. 1; Cat. N. Am. B. 1858, no. 50.—STRICKL., Orn. Syn. I, 1855, 200.—SCL. & SALV., Ibis, 1859, 220.—GRAY, Hand-I. I, 1869, 47.

"*Scops trichopsis*", GRAY, Hand-I. I, 1869, 47 (Sharpe).—SCL. & SALV., Nom. 1873, 117 (*Mexico; Guatemala*).

Scops asio var. *enano*, "LAWR.", RIDGW., Bull. Essex Inst. V, Dec. 1873, 200 (*E. Mexico; Guatemala*); in B. B. & R., Hist. N. Am. B. III, 1874, 48 (do.).

Scops enano, BOUC., Cat. Av. 1876, 91 (*Mexico*).

Scops asio, subsp. *γ. Scops enano*, SHARPE, Cat. Strig. Brit. Mus. 1875, 118 (*Mexico; W. Mexico*).

Habitat.—Eastern and Northern Mexico; Guatemala; Texas (*Cassin*).

DIAGNOSIS.—Wing, 5.60–5.90; tail, 3.10–3.50; culmen, .45–.50; tarsus, 1.00–1.15; middle toe, .70–.75. *Gray phase (adult)*.—Similar to the gray adult of *S. cassini*, but toes bristled, the occipital collar nearly obsolete, and the nuchal collar less distinct. *Red phase (adult)*.*—Above dull rusty, much broken across the nape by a collar of pale ochraceous spots, the whole surface elsewhere being also more or less mottled with paler rusty than the ground-color, and relieved by ragged mesial streaks of black. Lower parts pale rufous, each feather crossed near the end by a wide white bar, and with two to three narrow, somewhat irregular lines of blackish.

Young.†—Above brownish-gray, transversely mottled with darker and paler, and *without dusky shaft-streaks*. Below grayish-white, with

* Dueñas, Guatemala. In Mus. Salvin & Godman.

† Coban, Vera Paz. In Mus. Salvin & Godman.

badly-defined bars of pale grayish-brown, the feathers somewhat ochraceous beneath the surface. Wings and tail as in the adult.

REMARKS.—The gray phase of this form is exceedingly similar in general appearance to that of *S. cassini*, not only above but also on the lower surface. The upper parts are more coarsely mottled, however, and the pale bands across the lower part of the nape and occiput are less conspicuous, especially the latter. The rufous phase is more like that of *S. barbarus*, the upper parts in particular being quite similar. On the lower parts, however, there is more rufous, while the black cross-lines are more distinct as well as more numerous. The species may be distinguished from all the other Mexican and Tropical American species (except from *S. cooperi*, from Costa Rica) by the distinctly bristled toes. In the latter feature, it agrees with *S. asio* of the United States, but is considerably smaller, while the red phase is very different from the corresponding plumage of that species. It is also smaller, unless compared with the small race bird distinguished as var. *floridanus*, which differs in colors and markings, as explained in the remarks respecting that form on page 113.

The *Scops McCallii* of Cassin seems to be the present form rather than what has been so called by most subsequent writers (*i. e.*, true *asio* and *S. trichopsis*?), the description corresponding exactly, while the habitat is nearly the same—*i. e.*, Texas and “Northern Mexico”.

S. McCallii is described as follows:—

“In form and general appearance like the preceding, (*S. asio*), but *much smaller*; short and robust; wing with the fourth quill longest; tail short, slightly curved inwards; tarsi rather long, fully covered; toes partially covered with long hair-like feathers. ADULT. *Male*.—Much resembling in color the adult of the species immediately preceding, [*i. e.*, *S. asio*], but *darker*; entire plumage above ashy brown, nearly every feather with a longitudinal stripe of brownish black, and with numerous irregular transverse lines and points of the same; under parts, ashy white, every feather with a longitudinal stripe of brownish black, and with well-defined but *irregular* transverse lines of the same; flanks and sides tinged with pale fulvous; quills brown, with several transverse bands of pale reddish-white, assuming the form of quadrangular spots on the outer webs, and pale reddish ashy on the inner webs; tail ashy brown, with about ten narrow transverse bands on all except the two central feathers, well-defined on the inner webs; scapular feathers and some of the greater coverts of the wings, edged with white; bill greenish horn-color, light yellowish at the tip; irides yellow.

“DIMENSIONS. Total length, $7\frac{1}{2}$ to 8 inches; wing, 6; tail, 3 inches. *Male*.

“HAB. Texas (Mr. Schott); Northern Mexico (Lieut. Couch). Spec. in Mus. Acad. Philada., and Nat. Mus., Washington City.

“OBS. This species very considerably resembles the adult or gray plumage of the *Scops asio*, but is uniformly *much smaller and darker*

in color. The transverse lines on the under surface of the body are better defined and more numerous."

In the above description, those characters which fit "*enano*", and not "*trichopsis*", I have taken the liberty to italicize.

In the "*Birds of North America*" (p. 53), a rufous specimen is described, which renders it still more certain that Cassin's *Scops McCallii* is the form which we have hitherto called "*enano*". The specimen there mentioned as in the National Museum from Florida is not this form, but has since been made the type of *S. asio* var. *floridanus*.*

—	Boston Soc...	Gray ad.	Guatemala .....	..... (?) .....	5.60	3.30	.55	1.05	.70
—	S. & G.	Gray ad.	San Bernardo, Guatemala.	Oct. —, 1862	5.70	3.10	.50	1.15	.75
—	...do	Gray ad. ♂.	V. de Fuego, Guatemala.	Jan. —, 1874	5.90	3.35	.50	1.12	.75
—	...do	Ruf. ad.	Dueñas, Guatemala	—, 1861	5.85	3.50	.50	1.05	.72
—	...do	Gray juv.	Coban, Vera Paz .....	..... (?) .....	5.60	3.25	.45	1.00	.70
—	G. N. L.	Gray ad.	Mexico .....	..... (?) .....	.....	.....	.....	.....	.....

γ. kennicottii.

? *Scops asio*, COOP. & SUCKL., Pacific R. R. Rep. XII, ii, 1860, 155 (*Washington Terr.*).—LORD, Naturalist in Vanconver I., II, 1866, 292.

Scops kennicottii, ELLIOT, Pr. Ac. Nat. Sci. Phila. 1867, 69; Illnstr. Birds Am. 1869, p. xxvii, pl. 11 (*Sitka, Alaska*; March, 1866).—DALL & BANNIST., Tr. Chicago Acad. I, ii, 1869, 273 (do.).—BAIRD, *id.* 311, pl. xxvii (do.).—GRAY, Hand-l. I, 1869, 47, no. 492.—FINSCH, Abh. Nat. Brem. III, 1872, 28 (*Alaska*).—BOUC., Cat. Av. 1876, 91.

Scops asio var. *kennicotti*, RIDGW. in Coues' Key, 1872, 203.—COUES, Check List, 1873, 65, no. 318 a.—B. B. & R., Hist. N. Am. B., III, 1874, 48, 53 ("*from Columbia River northward; Idaho*").

Scops asio, b. *kennicottii*, COUES, Birds N. W. 1874, 303.

Scops asio, subsp. a. *Scops kennicotti*, SHARPE, Cat. Strig. Brit. Mus. 1875, 117 (*Vancouver I.*; "*w. side Rocky Mts.*").

Kennicott's Owl, AUCT., l. c.

Habitat.—The Northwest coast district, from Oregon to Sitka; Idaho; Vancouver Island (*Sharpe*); British Columbia (*Sharpe*).

DIAGNOSIS.—*Adult* (♂, 59,847, Sitka, Alaska, March, 1866; Ferd. Bischoff. Elliot's type).—Above umber-brown, with a slightly reddish cast; feathers confusedly mottled transversely with dusky, and showing rounded spots of rufous, most conspicuous on the nape; each feather with a conspicuous mesial, broad, ragged stripe of black, these stripes most conspicuous on the forehead and scapulars; outer webs of scapulars light rufous, bordered terminally with black. Wings of a more grayish cast than the back, but similarly variegated; lower feathers of the middle and secondary wing-coverts each with a large, oval, pale rufous spot, covering most of the lower web. Secondaries crossed by six narrow, obscure bands of pale rufous; primaries with seven, somewhat rounded, quadrate spots of the same on the outer webs, forming

* Since the above was put in type, I have seen, through the courtesy of Dr. E. Coues, a series of this species collected in Southern Texas (by Mr. G. B. Sennett), and consequently the true *S. maccalli*. They agree exactly with typical "*S. enano*", which fact therefore settles the question of the proper name of this form.

as many transverse series; each light spot with a central dusky mottling. Tail more finely and confusedly mottled than the wings; the bands, though present, so indistinct as to be scarcely traceable, and so irregular or badly defined as to be of uncertain number. Ear-tufts black and rusty, the former along the shafts, and in transverse spots; on the outer webs the black predominating, on the inner, the rusty.

Lores and basal half of the frontal bristles white, the terminal half abruptly black; eyebrows about equally blackish and paler, the former bordering the feathers; eye surrounded by dark snuff-brown; cheeks and ear-coverts pale rusty, transversely barred with deeper rusty; facial circle not well defined, black. Chin and lores only white.

Ground-color of the lower parts dilute-rusty, becoming white on the flanks; each feather of the throat, jugulum, breast, sides, and flanks with a broad mesial stripe of black, this throwing off very narrow, rather distant, bars to the edge; the spaces between these bars alternately paler and deeper dilute-rusty; the black marks broadest on the sides of the breast, where they have an external deep rusty suffusion; the abdomen medially and the anal region scarcely maculate rusty-white; the lower tail-coverts each with a central, cuneate, longitudinal stripe of black. Tibiæ, tarsi, and lining of the wing plain deep rusty. Wing-formula, $3 = 4, 5 - 2, 6 - 1 = 9$. Wing, 7.40; tail, 4.00; culmen, .65; tarsus, 1.50; middle toe, .80.

No. 59,068 (Idaho; Dr. Whitehead), is considerably darker than the type, the ground-color above approaching snuff-brown; it differs, however, in no other respect as regards coloration; the size (as might be expected) is considerably smaller, measurements being as follows: Wing, 6.80; tail, 3.50; culmen, .60; tarsus, 1.20; middle toe, .80. Wing-formula the same as in type.

No. 4,530 (Washington Territory; Dr. Geo. Suckley) is just intermediate, in all respects, between typical *kennicotti* and *asio*, being referable to either with equal propriety, though perhaps inclining rather more to the former.

A very obvious character of this race is the smaller size, more quadrate form, and more rufous color, of the spots on the primaries, and the greater indistinctness of the bands on the tail; but this is merely in consequence of the greater extension of the brown markings, thus necessarily contracting the lighter spots. In these respects only, does the Washington Territory specimen differ from the two typical examples before me, having the larger, more whitish spots on the primaries, and more distinct bands on the tail, as in *asio*.

There is a wonderfully close resemblance in general aspect between this form of *Scops asio* and *S. semitorques* (Schleg.) of Japan, caused by the exceeding similarity in size, form, and coloration, both as regards tints and pattern. Indeed, the only very obvious difference consists in the distinctly white jugulum and well-defined lighter occipital and nuchal collars of *semitorques*, which has also the pencillings of the

lower surface narrower or more delicate. The differences between the two may be tabulated as follows:—

S. SEMITORQUES.*—A well-defined nuchal collar, of mottled pale ochraceous; jugulum immaculate white centrally. Feathers of the lower parts with their transverse pencillings growing fainter toward the middle line, which is unvariegated white from the central jugular spot to the anal region. Wing, 6.60–7.25; tail, 3.60–3.85; culmen, .60; tarsus, 1.25–1.40; middle toe, .80–.90. *Hab.*, Japan.

S. KENNICOTTI.—No well-defined nuchal band; jugulum closely barred centrally; feathers of the lower parts with their transverse pencillings not growing fainter toward the middle line, which is unvariegated white only on the abdominal portion; the medial black streaks to the feathers of the lower surface much broader, and transverse pencillings rather coarser. Wing, 6.90–7.30; tail, 3.50–4.50; culmen, .60–.65; tarsus, 1.35–1.45; middle toe, .80–.90. *Hab.*, North Pacific coast of North America from Sitka to Washington Territory, and Western Idaho.

δ. floridanus.

"*Scops asio*", ALLEN, Bull. M. C. Z. II, 1871, 338.

Scops asio var. *floridanus*, RIDGW., Bull. Essex Inst. V, Dec. 1873, 200 (*Indian R., Florida*); in B. B. & R., Hist. N. Am. B. III, 1874, 48, 51.

Scops asio, subsp. *β. Scops floridanus*, SHARPE, Cat. Strig. Brit. Mus. 1875, 118.

Scops floridanus, BOUC., Cat. Av. 1876, 91.

Habitat.—Florida and Lower Georgia.

DIAGNOSIS.—Similar to var. *asio*, but much smaller, and the colors deeper. The gray stage very similar to that of var. *asio*, but the red phase very appreciably different, there being a greater amount of rufous on the lower parts, the breast nearly uniformly colored, and the rufous broken elsewhere into transverse broad bars, connected along the shaft. Wing, 5.50–6.00; tail, 2.75–3.10.

This extreme Southern form is much smaller than the more Northern ones, being about the same in size as *S. maccalli* of Guatemala and Eastern Mexico, and *S. cassini*, also from the latter country. The colors are also darker and richer.

In the collection of the National Museum are two specimens of this race, one in each phase of plumage. The red one (No. 5,857, Indian River) measures, wing, 5.50; tail, 2.70; culmen, .55; tarsus, 1.05; middle toe, .65. The colors are much darker than those of Northern and Western specimens; the rufous of the neck, all round, shows indistinct, darker, transverse bars; the black border to the white scapular spots is restricted to the tip of the feathers; the inner webs of the ear-tuft feathers are scarcely paler than the outer; the neck and face are deeper rufous, while on the lower parts this color predominates, and is disposed chiefly in transverse rays; and the tibiae and tarsi are plain rufous. Only the middle of the abdomen and the anal region are pure white.

* *Otus semitorques*, SCHLEG., Fauna Japon. Aves, 1845, 25, pl. 8.

Scops semitorques, BONAP., Consp. I, 1850, 46.—SHARPE, Cat. Strig. Brit. Mus. 1875, 83.

e. maxwellia.

"*Scops asio*", RIDGW., Bull. Essex Inst. Nov. 1873, 185 (*Colorado*).

Scops asio, *e. maxwellia*, RIDGW., Field and Forest, June, 1877, 210, 213 (*Boulder Co., Colorado*; resident; breeding).

Mrs. Maxwell's Owl, RIDGW., *l. c.*

Habitat.—Mountains of Colorado (Boulder Co.; resident and breeding; *Mrs. Maxwell*).

DIAGNOSIS.—Ground-color above pale gray or grayish-brown, relieved by the usual ragged mesial streaks of black, and irregular mottlings and vermiculations of lighter and darker shades. The ground-color, however, never inclining strongly to reddish, and not darker in shade than a very light ash-gray or brown. The white spots on outer webs of the primaries *frequently confluent*, the darker spots, in extreme cases, being hardly visible on the basal portion of the quills when the wing is closed. Face grayish-white, with faint vermiculations of darker grayish. *No rusty gular collar*, but in its stead sparse, narrow bars of brown or rusty on a white ground. Wing, 6.80–6.90; tail, 3.90–4.10; culmen, .60; tarsus, 1.45–1.50; middle toe, .80–.85.

The characteristics of this form are remarkably constant, a series of a dozen or more specimens affording no instance of notable variation.

6. SCOPS TRICHOPSIS?

?*Scops trichopsis*, WAGL., Isis, 1832, 276 (*Mexico*).—BONAP., Consp. I, 1850, 46.—STRICKL., Orn. Syn. I, 1855, 201.—SALVIN, Ibis, 1874, 314.—BOUC., Cat. Av. 1876, 91 (*Mexico*).

Ephialites trichopsis, GRAY, Genera B. I, 1844, 38.

Megascops trichopsis, KAUP, Trans. Zool. Soc. Lond. IV, 1862, 227.

Asio trichopsis, BONAP., Rev. et Mag. de Zool. 1854, 543.

Scops asio, subsp. *δ. Scops trichopsis*, SHARPE, Cat. Strig. Brit. Mus. 1874, 119 (*W. Mexico*).

"*Ephialites choliba*", LAWR., Ann. Lyc. N. Y. VI, 1853, 4 (*ucc Vieill.*).

Scops asio var. *maccalli*, COUES, Key, 1872, 203; Check List, 1873, 65, no. 318 *b.*—RIDGW., in B. B. & R. III, 1874, 49, 52.

Habitat.—Western Mexico, and the extreme southwestern portion of the United States (Texas; *Cassin*. New Mexico; *Nat. Mus.* Stockton, Cal.; *Mus. G. N. Lawrence*.)

DIAGNOSIS.—*Adult* (No. 9,147, New Mexico, Feb. 10, 1854; Kennerly and Möllhausen):—Above light ash-gray, minutely vermiculated with dusky and grayish-white, each feather with a distinct mesial stripe of blackish, showing in strong relief; these stripes broadest on the forehead. Outer webs of the exterior row of scapulars white, without black terminal borders; outer webs of two or three lower, middle, and greater wing-coverts also white; outer webs of primaries marked with transverse series of white spots, these forming about eight bands across the larger quills. Tail crossed by about eight narrow, pale bands. Ear-coverts, cheeks, throat, and jugulum finely and uniformly barred transversely, or vermiculated, with dusky and grayish-white; the facial circle interrupted across the throat, where, in its place, is a series of

longitudinal, black dashes. Lower parts grayish-white, with numerous, very narrow, transverse bars of dusky, each feather with a mesial stripe of black, these stripes forming on the breast conspicuous spots; tibiæ and tarsi dull soiled-white, spotted with dark brown; crissum immaculate white. Wing, 6.50; tail, 3.30; culmen, .55; tarsus, 1.15; middle toe, .70.

Young, in down, but nearly full-grown (No. 16,932, Cape St. Lucas, Lower California; J. Xantus):—Remiges and rectrices as in the adult. Rest of the plumage, above and below, including the head, narrowly barred with dusky and grayish-white, the former predominating above, the latter prevailing below; eyebrows and lores white; wing-coverts finely mottled transversely with dusky and white, the latter forming spots on the lower feathers; tibiæ and tarsi with numerous dusky bars.

REMARKS.—An adult from Stockton, California (E. S. Holden), kindly loaned me by Mr. Geo. N. Lawrence, and the only United States example, besides the one described above, that I have seen, differs from the specimen from New Mexico in having the general tint of the plumage rather more brownish, and the mesial blackish streaks of the upper parts less distinct. It measures, wing, 6.20; tail, 3.10.

The form of Scops-owl represented by the specimens described above, as well as by those from which Mr. Sharpe's descriptions are drawn, is certainly to be distinguished from the several styles of *S. asio* treated in the foregoing pages; but whether it is a distinct species, or merely another geographical race of *asio*, cannot be decided without additional material. For the present, however, I keep it separate, on account of the different pattern of the markings on the lower plumage, which in *S. asio* is exactly the same in all the several races.

There is also considerable doubt as to the name this form should bear. Wagler (*l. c.*) describes an owl from Mexico which may be this bird, but the only pertinent character which I am able to glean from his description is that the toes are bristled; it is, therefore, either this bird or one of the forms of *asio*; but in identifying the *Scops trichopsis* of Wagler with the bird under consideration, I merely adopt the determination of that name as made by Messrs. Scater and Salvin, and, subsequently, by Mr. Sharpe.

That this is the bird which Mr. Sharpe describes as *Scops asio*, "subsp. *δ. Scops trichopsis*" (*l. c.*), there can be no doubt, his description fitting perfectly the example described above, while his additional remarks on pp. 120, 121, show that he fully appreciated the character of the differences between it and true *asio*. We transcribe Mr. Sharpe's remarks:—

"*Obs.* This is a small race of *S. kennicotti* [*qu. lapsus calam. for asio?*]; but, as far as can be determined, it has only a grey phase and no brown one. Its measurements distinguish it at once; and it may also be told by its narrowly barred under surface, every feather being streaked with black, and barred with the same, from the chin to the

lower abdomen and flanks. It is larger than *Scops enano* [*i. e.*, *maccalli*], and differs from that bird also in not having a rufous phase; the cross-barring of the under surface in the latter is of the same character in *S. enano* as in *S. asio*; that is to say, the bars are often double, whereas in *S. trichopsis* they are single and very distinct."

The specimens in the British Museum, two in number, are both from Western Mexico; and it would seem that the species is mainly confined to the Pacific slope of that country, though ranging sparingly into the Southwestern United States, where, however, true *S. asio* is much more common.

7. SCOPS COOPERI.

Scops cooperi, RIDGWAY, MS.

Habitat.—Costa Rica.

SP. CH.—Very similar to the grayish style of *S. brasilianus*, but with the toes very distinctly bristled.

♀ *ad.* (No. 74,207, Santa Ana, Costa Rica, Sept. 4, 1875, José C. Zeledon):—Above grayish umber-brown, very finely vermiculated with dusky, the feathers of the pileum and back having mesial, chain-like streaks of blackish; outer webs of exterior scapulars somewhat varied with white spotting; outer webs of primaries marked with quadrate spots of pale fulvous, bordered with blackish, there being about ten of these spots on the longest quill (the fifth); tail crossed with narrow bands of the same color, likewise bordered with a narrower dusky bar, these light bands about 10–12 in number. Face brownish-white, finely but distinctly barred with dusky brown; superciliary region lighter and more coarsely mottled; face bordered laterally or posteriorly by a distinct narrow band of dusky spots. Lower parts white, densely marked with blackish and umber-brown zigzags, imparting a light brownish appearance to the whole surface; feathers of the tibiae and tarsi light rusty-umber, thickly barred with deeper brown. "Iris lemon-yellow; cere, bill and feet, yellowish green." Wing, 7.00; tail, 3.75; culmen, .62; tarsus, 1.25; middle toe, 1.00.

♀ *juv.* (No. 74,552, San José, Costa Rica, May 10, 1866; José C. Zeledon):—Toes distinctly bristled, excepting on the two or three terminal scutellæ. General color above light grayish-brown, relieved by very minute and rather indistinct, transverse vermiculations of dusky, and larger, but still inconspicuous, transverse marks of white, these larger and more obvious on the lower webs of the middle wing-coverts. Remiges and rectrices pale grayish-brown, minutely vermiculated with dusky, and distinctly banded with pale reddish-fulvous (color of sulphate of manganese). Lower parts dirty-whitish, crossed everywhere with transverse vermiculations, or ragged, narrow lines of dusky, strongly suffused with brownish across the jugulum, where the vermiculations are minute and confused; flanks and crissum with the bars broad and distinct, the interspaces nearly pure white, and wider than the mottled-brownish bars. Bill pale horn-color, yellowish at the end; "iris yellow"; claws very

pale horn-color, darker terminally. Culmen, .60; tarsus, 1.30; middle toe, .88*

REMARKS.—It is very difficult to express, by a mere description, the points of difference in coloration between this new species and the grayish phase of *Scops brasilianus*. Specimens of the latter, collected in Costa Rica, by Mr. Zeledon, are hardly appreciably different at a casual glance. Upon close comparison, however, it may readily be seen that the lower parts of *S. cooperi* are much more densely vermiculated,† the legs much more rufescent and more distinctly barred, the white variegation of the outer scapulars far less conspicuous, and the light bars on the remiges and rectrices narrower and more numerous. Compared with one of these specimens of *S. brasilianus*, having the wing the same length (7.00 inches), it is found that the tail of *S. cooperi* is much shorter, its length being only 3.75 instead of 4.25; this shortness of the tail in the present species causes the legs to appear proportionately longer, the claws reaching considerably beyond the end of the tail, while in *S. brasilianus* they do not reach to within half an inch of the tip. This greater elongation of the legs is not merely apparent, however, the tarsi being absolutely longer and the toes both longer and stouter; the claws in particular are decidedly stronger than in *S. brasilianus*.

It is not necessary, however, to make a minute comparison of markings and proportions in order to distinguish between these two species, the single character of the toes, being strongly bristled in *S. cooperi* and absolutely naked in *S. brasilianus*, being sufficient for the purpose. *S. cooperi* is, moreover, the only bristly-toed member of this genus found south of Guatemala, so there is no need of confounding it with any other species of the same group.

I have named this species, at the request of Mr. Zeledon, the collector of the type-specimens, after Mr. Juan Cooper, of Cartago, Costa Rica, a particular friend of his, to whom he is much indebted for many interesting contributions to his collections.

* Being a very young bird, and the remiges and rectrices but partly developed, measurements of the wing and tail would of course be of no value.

†Not more so, however, than in some specimens typical of the var. *guatemalæ*, Sharpe.